

(32)

I will learn about the whats and wherefores of Algebra Lab.

- * Class mix
- * Earning grades/credits in Algebra Lab
- * What about AAs1 grades?

Page 1

(33)

Close your laptops.

IWBAT write the range and domain of simple function equations. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

domain:

range:

Page 2

IWBAT understand the range and domain of simple function equations. (33)

Find the domain and range of the following function:

$$y = (x + 2)^2 - 3$$

Page 3

IWBAT understand the range and domain of simple function equations. (33)

Find the domain and range of the following function:

$$y = \sqrt{x - 7}$$

Page 4

IWBAT understand the range and domain of simple function equations.

(33)

Exit Ticket

Find the domain and range of the following function:

$$y = \frac{x-1}{x+2}$$

Close your laptops.

(34)

IWBAT write the range and domain of simple function equations. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT understand the range and domain of simple function equations. (34)

Find the domain and range of the following function:

$$\frac{6x^3+11x-17x-30}{x+2} = y$$

IWBAT understand the range and domain of simple function equations. (34)

Find the domain and range of the following function:

$$y = \frac{x-2}{\sqrt{7-x}}$$

IWBAT understand the range and domain of simple function equations.

(34)

Exit Ticket

Find the domain and range of the following function:

$$y = \frac{x+3}{x^2-9}$$

Page 9

Close your laptops.

(35)

IWBAT solve combined functions problems step-wise. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Composition of functions

Page 10

IWBAT solve combined functions problems step-wise. (35)

Combine $F(x)$ and $G(x)$ to create $F(G(x))$.

$$F(x) = \sqrt{x-3} \qquad G(x) = x^2 - 9$$

IWBAT solve combined functions problems step-wise. (35)

Combine $f(x)$ and $g(x)$ to create $f(g(x))$.

$$f(x) = \frac{x+3}{2x} \qquad g(x) = x^2 - 2$$

IWBAT solve combined functions problems step-wise. (35)

Combine $F(x)$ and $G(x)$ to create $G(F(x))$.

$$F(x) = \sqrt{x - 3} \qquad G(x) = x^2 - 9$$

Exit Ticket

Page 13

Close your laptops.

(36)

IWBAT solve combined functions problems step-wise. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 14

IWBAT solve combined functions problems step-wise. (36)

Combine $f(x)$ and $g(x)$ to create $g(f(x))$.

$$f(x) = x^2 + 2x - 5 \quad g(x) = 3x$$

IWBAT solve combined functions problems step-wise. (36)

Combine $f(x)$ and $g(x)$ to create $f(g(x))$.

$$f(x) = x^2 + 2x - 5 \quad g(x) = 3x$$

IWBAT solve combined functions problems step-wise. (36)

Combine $f(x)$ and $g(x)$ to create $g(f(x))$.

$$f(x) = x^2 + 2x - 5 \quad g(x) = 4$$

Exit Ticket

Page 17

Close your laptops.

(37)

IWBAT write the range and domain of combined function equations. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 18

IWBAT write the range and domain of combined function equations. (37)

$$f(x) = x + 3 \qquad g(y) = 5\sqrt{y}$$

$$g(f(x)) = 5\sqrt{x + 3}$$

Page 19

IWBAT write the range and domain of combined function equations. (37)

$$f(x) = -4 - x \qquad g(y) = 2\sqrt{y}$$

$$g(f(x)) = 2\sqrt{-4 - x}$$

Exit Ticket

Page 20

Close your laptops.

IWBAT write the range and domain of combined function equations. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT write the range and domain of combined function equations. (38)

$$f(x) = x - 4 \qquad g(y) = \sqrt{y} - 1$$

$$g(f(x)) = \sqrt{x - 4} - 1$$

IWBAT write the range and domain of combined function equations.

(38)

Exit Ticket

$$f(x) = x + 1 \qquad g(x) = \frac{1}{x}$$

$$g(f(x)) = \frac{1}{x+1}$$

Page 23

Close your laptops.

(39)

IWBAT write the range and domain of combined function equations. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 24

IWBAT write the range and domain of combined function equations. (39)

$$f(x) = x + 6 \quad g(y) = \frac{2}{\sqrt{y}}$$

$$g\left(f(x)\right) = \frac{2}{\sqrt{x+6}}$$

IWBAT write the range and domain of combined function equations. (39)

$$f(x) = 4 - x \quad g(y) = \frac{3}{\sqrt{y}}$$

$$g\left(f(x)\right) = \frac{3}{\sqrt{4-x}}$$

IWBAT write the range and domain of combined function equations.

(39)

Exit Ticket

What is the general rule for the domain of a function containing $\sqrt{x + a}$?

Page 27

Close your laptops.

(40)

IWBAT multiply rational expressions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 28

Multiply these rational expressions.

(40)

$$\frac{3}{4} \times \frac{2}{5}$$

$$\frac{3x}{x+1} \times \frac{x-1}{x^2}$$

$$\frac{x+2}{x-4} \times \frac{x+4}{x+2}$$

Multiply these rational expressions.

(40)

$$\frac{2x+1}{6x} \times \frac{3x-1}{x+1}$$

Exit Ticket

(41)

Close your laptops.

IWBAT divide rational expressions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 31

(41)

Divide these rational expressions.

$$\frac{4}{5} \div \frac{2}{7}$$

$$\frac{3x}{x+1} \div \frac{x^2}{x-1}$$

$$\frac{x+2}{x-4} \div \frac{x+2}{x+4}$$

Page 32

(41)

Exit Ticket

Divide these rational expressions.

$$\frac{2x+1}{6x} \div \frac{3x-1}{x+1}$$

(42)

Close your laptops.

IWBAT add rational expressions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

(42)

Add these rational expressions.

$$\frac{3}{4} + \frac{2}{5}$$

$$\frac{3x}{x+1} + \frac{x-1}{x^2}$$

$$\frac{x+2}{x-4} + \frac{x+4}{x+2}$$

Page 35

(42)

Add these rational expressions.

$$\frac{2x+1}{6x} + \frac{3x-1}{x+1}$$

Exit Ticket



Page 36

(43)

Close your laptops.

IWBAT add and subtract rational expressions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 37

(43)

Subtract these rational expressions.

$$\frac{4}{5} - \frac{2}{7}$$

$$\frac{3x}{x+1} - \frac{x^2}{x-1}$$

$$\frac{x+2}{x-4} - \frac{x+2}{x+4}$$

Page 38

(43)

Exit Ticket

Subtract these rational expressions.

$$\frac{2x+1}{6x} - \frac{3x-1}{x+1}$$



Page 39

(44)

Close your laptops.

IWBAT add and subtract rational expressions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 40

Add these rational expressions.

(44)

$$\frac{5x}{x-3} + \frac{6x}{x+2}$$

Subtract these rational expressions.

$$\frac{2x}{x+1} - \frac{x}{x-2}$$

Page 41

Subtract these rational expressions.

(44)

$$\frac{x+4}{x-4} - \frac{x+2}{x+2}$$

Exit Ticket



Page 42

(45)

Close your laptops.

IWBAT explain and set up proportions. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 43

IWBAT explain and set up proportions.

(45)

proportion:

Gasoline is sold by the gallon. If 5 gal costs \$17.35, how much would 12 gal cost?

Page 44

IWBAT explain and set up proportions. (45)

At a certain time of day, a sign 8 ft tall casts a shadow 6 ft long. How long is the shadow of a 6 ft tall person at the same time?

Page 45

IWBAT explain and set up proportions. (45)

Eric worked 13 hours last week at the library and earned \$91.00. If he continues at the same hourly pay, how many more hours must he work to earn an additional \$133.00?

Exit Ticket

Page 46

Close your laptops.

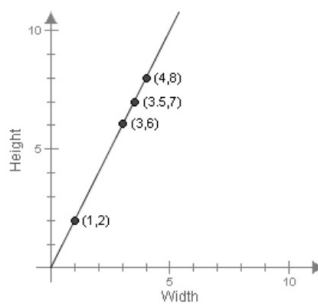
IWBAT distinguish between direct and inverse variation. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

direct

inverse

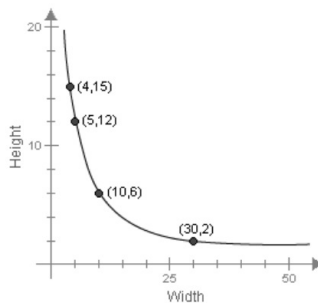
Page 47

direct



inverse

(46)



$$y = a * x$$

$$y = \frac{a}{x}$$

Page 48

Determine whether each is a direct or an inverse variation.

(46)

Exit Ticket

A. $y = 4x + 2$

B. $y = \frac{4}{x+1}$

C. $y = \frac{1}{4x}$

D. $y = \frac{1}{4}x$

Close your laptops.

(47)

IWBAT factor quadratic equations with an x^2 coefficient other than 1. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT factor quadratic equations with an x^2 coefficient (47)
other than 1.

$$2x^2 + 10x + 8$$

$$4x^2 - 4x - 8$$

Page 51

IWBAT factor quadratic equations with an x^2 coefficient (47)
other than 1.

$$6x^2 + 11x + 3$$

Exit Ticket

Page 52

Close your laptops.

IWBAT factor quadratic equations with an x^2 coefficient other than 1. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT factor quadratic equations with an x^2 coefficient other than 1. (48)

$$12x^2 - 17x - 7$$

$$8x^2 - 22x + 5$$

IWBAT factor quadratic equations with an x^2 coefficient other than 1. (48)

$$3x^2 + 12x + 9$$

Exit Ticket

Page 55

Close your laptops.

(49)

IWBAT identify and factor quadratic equations with special cases. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

perfect squares

non-examples

Page 56

IWBAT identify and factor quadratic equations with special cases. (49)

Special Case 1: Difference of Squares

$$x^2 - 9$$

$$9x^2 - 25$$

IWBAT identify and factor quadratic equations with special cases. (49)

Special Case 2: Perfect Square Trinomials

$$x^2 + 4x + 4$$

$$9x^2 - 18x + 9$$

IWBAT identify and factor quadratic equations with special cases. (49)

Identify these as Perfect Square Trinomials, Difference of Squares, or neither.

Exit Ticket

A. $x^2 + 36$

B. $x^2 + 12x + 36$

C. $x^2 - 36$

D. $7x^2 + 14x + 49$

Close your laptops.

(50)

IWBAT identify and factor quadratic equations with special cases. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT identify and factor quadratic equations with special cases. (50)

Special Case 1: Difference of Squares

$$x^2 - 9$$

Page 61

IWBAT identify and factor quadratic equations with special cases. (50)

Special Case 1: Difference of Squares

$$9x^2 - 25$$

Page 62

IWBAT identify and factor quadratic equations with special cases. (50)

Factor these into their binomial pairs or explain why they cannot be factored.

A. $x^2 + 36$

B. $x^2 - 36$

Exit Ticket

Page 63

Close your laptops.

(51)

IWBAT identify and factor quadratic equations with special cases. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 64

IWBAT identify and factor quadratic equations with special cases. (51)

Special Case 2: Perfect Square Trinomials

$$9x^2 - 18x + 9$$

Page 65

IWBAT identify and factor quadratic equations with special cases. (51)

Special Case 2: Perfect Square Trinomials

$$x^2 + 4x + 4$$

Page 66

IWBAT identify and factor quadratic equations with special cases. (51)

Factor these or explain why they cannot be factored.

A. $7x^2 + 14x + 49$ B. $x^2 + 12x + 36$

Exit Ticket

Page 67

Close your laptops.

(52)

IWBAT convert quadratic equations in standard form to vertex form via completing the square. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Standard form:

Vertex form:

Page 68

IWBAT convert quadratic equations in standard form (52)
to vertex form via completing the square.

$$y = -4x^2 - 12x + 7$$

Page 69

IWBAT convert quadratic equations in standard form (52)
to vertex form via completing the square.

$$y = 4x^2 - 8x + 3 \qquad y = x^2 + 4x - 15$$

Page 70

IWBAT convert quadratic equations in standard form to vertex form via completing the square. (52)

$$y = 4x^2 + 16x - 3$$

Exit Ticket

Page 71

Close your laptops.

(53)

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

quadratic equation:

quadratic formula:

Page 72

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (53)

$$y = x^2 + 4x - 15$$

Page 73

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (53)

$$y = -4x^2 - 9x + 7$$

Page 74

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (53)

$$y = 4x^2 + 5x - 3$$

Exit Ticket

Page 75

Close your laptops.

(54)

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 76

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (54)

$$y = x^2 + 2x + 6$$

Page 77

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (54)

$$y = x^2 + 2x + 9$$

Exit Ticket

Page 78

Close your laptops.

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (55)

$$y = x^2 + 6x + 9$$

IWBAT identify the parts for the quadratic formula and use it to find the x-intercepts (roots) of a quadratic equation. (55)

$$y = 9x^2 - 12x + 4$$

Exit Ticket

Page 81

Close your laptops.

(56)

IWBAT identify the vertex of a parabola given the roots of a quadratic equation. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 82

IWBAT identify the vertex of a parabola given the roots of a quadratic equation. (56)

$$y = 4x^2 + 5x - 3$$

Page 83

IWBAT identify the vertex of a parabola given the roots of a quadratic equation. (56)

$$y = x^2 + 4x - 15$$

Exit Ticket

Page 84

Close your laptops.

IWBAT identify a translated quadratic equation and write a quadratic equation given the vertex. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Parent function:

Standard form:

Vertex form:

IWBAT identify a translated quadratic equation and write a quadratic equation given the vertex. (57)

$$y = 2x^2 - 6x + 4$$

IWBAT identify a translated quadratic equation and write a quadratic equation given the vertex. (57)

Write the vertex form of the quadratic and convert it to standard form.

Vertex: $(-2.5, 6)$

Exit Ticket

Page 87

Close your laptops.

(58)

IWBAT simplify radicals. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 88

IWBAT simplify radicals.

(58)

$$A.\sqrt{4x^2}$$

$$B.\sqrt{32}$$

$$C.\sqrt{15x^3}$$

$$D.\sqrt[3]{8x}$$

Page 89

IWBAT simplify radicals.

(58)

$$A.\sqrt{24x^3}$$

$$B.\sqrt[3]{24x^3}$$

Exit Ticket

Page 90

Close your laptops.

IWBAT multiply and divide radicals. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

IWBAT multiply and divide radicals.

$$A. \sqrt{3x} * \sqrt{6x}$$

$$B. \frac{\sqrt{3}}{\sqrt{2}} * \frac{\sqrt{2}}{\sqrt{3}}$$

$$C. \sqrt{13x^3} * \frac{\sqrt{4}}{\sqrt{13x}}$$

$$D. \sqrt{\frac{6x}{5}} * \sqrt{\frac{2x^3}{3x}}$$

IWBAT multiply and divide radicals.

(59)

$$\frac{\frac{\sqrt{2x}}{\sqrt{3}} * \frac{\sqrt{5x^5}}{\sqrt{6}}}{\sqrt{5}}$$

Exit Ticket

Page 93

Close your laptops.

(60)

IWBAT add and subtract radicals. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

Page 94

IWBAT add and subtract radicals.

(60)

$$A. \sqrt{6} + \sqrt{24}$$

$$B. \sqrt{3x} - \sqrt{75x}$$

$$C. 2\sqrt{3} + 3\sqrt{3} - 2\sqrt{2}$$

Page 95

IWBAT add and subtract radicals.

(60)

$$\sqrt{25x} + \sqrt{50x^3} - \sqrt{100x}$$

Exit Ticket

Page 96

Close your laptops.

IWBAT be able to rationalize denominators. I will capture my thinking using the math note catcher including teacher and student-team modeled example problems on the Promethean board. I will demonstrate my understanding on my exit ticket.

conjugate (math):

IWBAT be able to rationalize denominators. (61)

$$A. \frac{2+\sqrt{2}}{2-\sqrt{3}}$$

$$B. \frac{1-\sqrt{2x}}{6+\sqrt{x}}$$

$$C. \frac{4}{\sqrt{x}-\sqrt{x-4}}$$

IWBAT be able to rationalize denominators.

(61)

$$\frac{\sqrt{x}}{\sqrt{x-2}}$$

Exit Ticket